

Appn. No. 10/787,516

Attorney Docket No. 10544-288

I. Listing of the Claims

1. through 35. (Cancelled)

36. (Currently Amended) An x-ray reflective optic optical system or analyzing a sample comprising:

an optic which conditions an x-ray beam, the optic defining a near end and a far end and including a first optical element defining a first reflective surface and a second optical element defining a second reflective surface orthogonal to the first reflective surface, the first and second reflective surfaces reflecting x-rays transmitted from an x-ray source to the sample; and

an adjustable first aperture which adjusts convergence of the x-ray beam by selecting a portion of the x-ray beam delivered by the optical element, the first aperture being positioned between the optic and the sample; and

a second aperture which maximizes flux incident on the sample by occluding a portion of the x-ray beam to reduce the background radiation around the sample, the second aperture being positioned between the first aperture and the sample.

37. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the aperture is a diaphragm.

38. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the aperture includes a fixed portion and a movable portion that is movable relative to the fixed portion, the aperture being adjusted by moving the movable portion relative to the fixed portion.

39. (Cancelled)

40. (Cancelled)



BRINKS HOFER GILSON & LIONE
PO Box 10395
Chicago, IL 60611-5599

Appln. No. 10/787,516

Attorney Docket No. 10544-288

41. (Currently Amended) The x-ray reflective optical system of claim 38 wherein the fixed portion is a fixed blade and the movable portion is a movable blade.

42. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the ~~optical-element~~ optic is a two-dimensional optical element.

43. (Currently Amended) The x-ray reflective optical system of claim 36 wherein at least one reflective surface has a substantially elliptic shape.

44. (Currently Amended) The x-ray reflective optic of claim 43 wherein both reflective surfaces have a substantially elliptic shape.

45. (Currently Amended) The x-ray reflective optical system of claim 43 wherein one reflective surface has a substantially elliptic shape and the other reflective surface has a substantially parabolic shape.

46. (Currently Amended) The x-ray reflective optical system of claim 36 wherein at least one reflective surface has a substantially parabolic shape.

47. (Currently Amended) The x-ray reflective optical system of claim 46 wherein both reflective surfaces have a substantially parabolic shape.

48. (Currently Amended) The x-ray reflective optical system of claim 41 wherein the fixed blade and the movable blade are positioned at or near a distal portion of the x-ray reflective optic relative to the source.

49. (Currently Amended) The x-ray reflective optical system of claim 41 wherein the fixed blade and the movable blade are each substantially L-shaped.



BRINKS HOFER GILSON & LIONE
PO Box 10395
Chicago, IL 60611-5599

Appn. No. 10/787,516

Attorney Docket No. 10544-288

50. (Currently Amended) The x-ray reflective optical system of claim 41 wherein the movable blade is movable from a high-convergence position to a low-convergence position.

51. (Currently Amended) The x-ray reflective optical system of claim 50 wherein in the low-convergence position, the movable blade occludes x-rays reflected from a far portion of the x-ray reflective optic.

52. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the first optical element is a first multilayer optic and the second optical element is a second multilayer optic.

53. (Currently Amended) The x-ray reflective optical system of claim 52 wherein the first multilayer optic and the second multilayer optic have graded d-spacing.

54. (Currently Amended) The x-ray reflective optical system of claim 53 wherein the first multilayer optic and the second multilayer optic have depth graded d-spacing.

55. (Currently Amended) The x-ray reflective optical system of claim 53 wherein the first multilayer optic and the second multilayer optic have laterally graded d-spacing.

56. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the first optical element is a first x-ray reflective crystal and the second optical element is a second x-ray reflective crystal.

BRINKS
HOFER
GILSON
& LIONE

BRINKS HOFER GILSON & LIONE
PO Box 10395
Chicago, IL 60611-5599

Appn. No. 10/787,516

Attorney Docket No. 10544-288

57. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the aperture is positioned between the source and the first and second optical elements.

58. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the aperture is attached to the far end of the optic.

59. (Currently Amended) The x-ray reflective optical system of claim 36 wherein the aperture is attached to the near end of the optic.



BRINKS HOFER GILSON & LIONE
PO Box 10395
Chicago, IL 60611-5599